

CLAIMS

1. A frame unit for tensioning a printing screen, the frame unit comprising a frame including at least one frame member, the at least one frame member comprising:
a supporting frame element;
at least one engagement element for engaging a fitted printing screen to tension the same, wherein the at least one engagement element comprises a body which is pivotally coupled to the supporting frame element such that the at least one engagement element is pivotable in one, tensioning sense to tension a fitted printing screen and the other, opposite sense to adopt a configuration in which a printing screen can be fitted to or removed from the frame unit, a first, engagement arm extending from the body for engaging a fitted printing screen, and a second, biasing arm extending from the body to which a biasing force is applied to bias the at least one engagement element to pivot in the tensioning sense; and
at least one biasing element operative to apply a biasing force to the biasing arm of the at least one engagement element to bias the at least one engagement element to pivot in the tensioning sense and tension a fitted printing screen.
2. The frame unit of claim 1, wherein the supporting frame element comprises an extruded section.
3. The frame unit of claim 1 or 2, wherein the at least one engagement element comprises an extruded section.
4. The frame unit of any of claims 1 to 3, wherein the supporting frame element includes a cavity along a length thereof in which the at least one engagement element is disposed.

5. The frame unit of any of claims 1 to 4, wherein the supporting frame element includes a recess in a surface thereof into which the at least one engagement element extends for receiving an engagement member at a respective edge of a fitted printing screen.
6. The frame unit of any of claims 1 to 5, wherein the supporting frame element includes one of a pivot projection or a pivot recess extending along a length thereof and the at least one engagement element includes the other of a pivot recess or a pivot projection extending along a length thereof which engages the one of the pivot projection or the pivot recess of the supporting frame element.
7. The frame unit of claim 6, wherein the one of the pivot projection or the pivot recess of the supporting frame element and the other of the pivot recess or the pivot projection of the at least one engagement element are captively engaged.
8. The frame unit of any of claims 1 to 7, wherein the at least one biasing element provides a permanent biasing force.
9. The frame unit of any of claims 1 to 8, wherein the at least one biasing element comprises a resilient element.
10. The frame unit of any of claims 1 to 9, wherein the at least one frame member comprises:
a plurality of biasing elements for biasing the at least one engagement element.
11. The frame unit of any of claims 1 to 10, wherein the at least one frame member comprises:
a plurality of engagement elements disposed along a length of the supporting frame element.

12. The frame unit of claim 11 when appendant upon claim 10, wherein each engagement element is biased by at least one biasing element.
13. The frame unit of claim 11 or 12, wherein the engagement elements are juxtaposed in end-to-end relation along a length of the supporting frame element.
14. The frame unit of any of claims 1 to 13, wherein the frame includes a mounting surface by which the frame unit is mounted to a screen printing machine.
15. The frame unit of claim 14, wherein the at least one biasing element is configured to apply a biasing force to the biasing arm of the at least one engagement element in a direction substantially orthogonal to the mounting surface.
16. The frame unit of claim 14 or 15, wherein the engagement arm of the at least one engagement element extends substantially orthogonally to the mounting surface.
17. The frame unit of any of claims 14 to 16, wherein the biasing arm of the at least one engagement element has a principal component extending parallel to the mounting surface.
18. The frame unit of claim 17, wherein the biasing arm of the at least one engagement element extends in a direction towards an outer edge of the supporting frame element.
19. The frame unit of any of claims 1 to 18, wherein the supporting frame element includes at least one aperture into which at least one engagement member can be inserted to engage the biasing arm of the at least one engagement element to pivot the at least one engagement

element in the other sense to adopt a configuration in which a printing screen can be fitted to or removed from the frame unit.

20. The frame unit of any of claims 1 to 18, wherein the at least one frame member further comprises:
a counter-biasing element operative to apply a counter-biasing force to the at least one engagement element to overcome the biasing force of the at least one biasing element and pivot the at least one engagement element in the other sense to adopt a configuration in which a printing screen can be fitted to or removed from the frame unit.
21. The frame unit of claim 20, wherein the at least one counter-biasing element comprises an expandable member.
22. The frame unit of claim 21, wherein the at least one counter-biasing element comprises an inflatable bladder.
23. The frame unit of any of claims 20 to 22, wherein the at least one counter-biasing element is configured to apply a counter-biasing force to a side of the biasing arm of the at least one engagement element opposite to which the biasing force is applied by the at least one biasing element.
24. The frame unit of any of claims 20 to 22, wherein the at least one engagement element further comprises a third, operating arm to which a counter-biasing force is applied by the at least one counter-biasing element to overcome the biasing force of the at least one biasing element and pivot the at least one engagement element in the other sense to adopt a configuration in which a printing screen can be fitted to or removed from the frame unit.

25. The frame unit of claim 24 when appendant upon claim 14, wherein the operating arm of the at least one engagement element has a principal component extending parallel to the mounting surface.
26. The frame unit of claim 25, wherein the operating arm of the at least one engagement element extends in a direction towards an inner edge of the supporting frame element.
27. The frame unit of any of claims 1 to 26, wherein the at least one frame member comprises an elongate member.
28. The frame unit of any of claims 1 to 27, wherein the frame is substantially rectangular in shape.
29. The frame unit of any of claims 1 to 28, wherein the frame includes a plurality of frame members.
30. The frame unit of claim 29, wherein the frame includes at least one pair of frame members disposed in opposed relation.
31. The frame unit of claim 30, wherein the frame comprises first and second pairs of frame members each disposed in opposed relation.
32. The frame unit of claim 31, wherein respective ends of the frame members are connected by corner pieces.
33. The frame unit of any of claims 29 to 32 when appendant upon claim 20, wherein the at least one counter-biasing element of each frame member is provided by a single, common counter-biasing element.
34. The frame unit of any of claims 1 to 33, in combination with a printing screen.

35. A jig for fitting a printing screen to or removing a printing screen from a frame unit comprising at least one engagement element for engaging a fitted printing screen in tensioning the same and at least one biasing element for applying a biasing force to the at least one engagement element to bias the at least one engagement element in a tensioning sense to tension a fitted printing screen, the jig comprising:
at least one engagement member for engaging the at least one engagement element, such that, when the frame unit is mounted to the jig, the at least one engagement member is operative to move the at least one engagement element against the biasing force of the at least one biasing element to adopt a configuration in which a printing screen can be fitted to or removed from the frame unit.
36. The jig of claim 35, wherein the at least one engagement member comprises a fixed member which acts, on mounting the frame unit to the jig, to move the at least one engagement element against the biasing force of the at least one biasing element to adopt a configuration in which a printing screen can be fitted to or removed from the frame unit.
37. The jig of claim 35 or 36, further comprising:
at least one clamp for mounting the frame unit to the jig.